World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:10, No:09, 2016

Artificial Generation of Visual Evoked Potential to Enhance Visual Ability

Authors : A. Vani, M. N. Mamatha

Abstract : Visual signal processing in human beings occurs in the occipital lobe of the brain. The signals that are generated in the brain are universal for all the human beings and they are called Visual Evoked Potential (VEP). Generally, the visually impaired people lose sight because of severe damage to only the eyes natural photo sensors, but the occipital lobe will still be functioning. In this paper, a technique of artificially generating VEP is proposed to enhance the visual ability of the subject. The system uses the electrical photoreceptors to capture image, process the image, to detect and recognize the subject or object. This voltage is further processed and can transmit wirelessly to a BIOMEMS implanted into occipital lobe of the patient’s brain. The proposed BIOMEMS consists of array of electrodes that generate the neuron potential which is similar to VEP of normal people. Thus, the neurons get the visual data from the BioMEMS which helps in generating partial vision or sight for the visually challenged patient.

Keywords : BioMEMS, neuro-prosthetic, openvibe, visual evoked potential
Conference Title : ICME 2016 : International Conference on Medical Engineering
Conference Location : Chicago, United States
Conference Dates : September 19-20, 2016